

Work Order ID 83358

83358

Page 1

Item ID: D3689-1

Accept

N9000040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: SLEEVE

Start Date: 17/04/2012 Start Qty: 16.00

16

Cust Item ID:

Required Date: 01/05/2012 Req'd Qty: 16.00

16

Customer:

Reference:

Approvals: Process Plan: *MLJ*

Date: *12/04/17*

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
----------	--------------

D3689	Rev B
-------	-------

100

0.00

100

DOOSAN LATHE

Doosan

Memo

0.00

Doosan Lathe

1- Turn as per Folio FA722 Rev: _____ & Dwg D3689 Rev: _____
2-CHECK THREAD WITH GO-NO GO GAUGE DT9450 A & B
3-Deburr per dwg D3689

SA 1256/25

15 1

*P10
LST
Pase*

110

0.00

110

QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.00

Quality Control

SA 1256/25

15

120

0.00

120

CONVENTIONAL MILLING MACHINE

Mill Conv

Memo

0.00

Conventional Milling Machine

C'sink .188" holes as per dwg D3689

SA 1256/25

15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 83358***83358***

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April-17-12 2:21:24 PM

Item ID: D3689-1

Accept

N9000040100Setup Start ***NS1***

Revision ID:

Item Name: SLEEVE

Stop ***NS2***

Start Date: 17/04/2012 Start Qty: 16.00

16

Cust Item ID:

Required Date: 01/05/2012 Req'd Qty: 16.00

16

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.00		SD 12/6/25		15			
140 *140* QC Quality Control	QC8- Inspect parts - second check Memo 100% CHECK,CHECK ALL DIMENSIONS AND THREAD FIT	0.00 0.00		OK 12/07/04		15			
150 *150* Purchasing Purchasing	PURCHASING Memo Issue P/O: 17380 LPI Per ASTM 1417 LEVEL 2 Certificate of conformaty is required	0.00 0.00						C2 12/07/09 15	

W/O:		WORK ORDER CHANGES					
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NOTE: Date & initial all entries

Work Order ID 83358***83358***

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April-17-12 2:21:24 PM

Item ID: D3689-1

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: SLEEVE

Start Date: 17/04/2012 Start Qty: 16.00

16

Cust Item ID:

Required Date: 01/05/2012 Req'd Qty: 16.00

16

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:
QC: Date: SPC (Y/N): Date:

Run Start ***NR1***
Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	Receive & Inspect for Damage & Mat'l Certs	0.00							
160									
Packaging	Memo	0.00							
Packaging	Ensure certificate of conformity is attached								
170	QC5- Inspect part completeness to step on W/O	0.00							
170									
QC	Memo	0.00							
Quality Control									
180	Identify as per dwg & Stock Location: <u>GA</u>	0.00							
180									
Packaging	Memo	0.00							
Packaging									

12/2/09 (10)

(15) 12/07/09

15 12/07/09

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 83358

83358

Page 4

April-17-12 2:21:24 PM

Item ID: D3689-1

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Item Name: SLEEVE

Stop ***NS2***

Start Date: 17/04/2012 Start Qty: 16.00

16

Cust Item ID:

Required Date: 01/05/2012 Req'd Qty: 16.00

16

Customer:

Reference:

Approvals: Process Plan: Date: Tooling:

Run Start ***NR1***

QC: Date: SPC (Y/N):

Date:

Stop ***NR2***

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID Tool # Plan
Code

Accept Reject Reject Insp.
Qty Qty Number Stamp

190

QC21- Final Inspection - Work Order Release

0.00

190

QC

Memo

0.00

Quality Control

OK 12/7/10

ME
12-07-09

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

April-17-12 2:21:34 PM

Page 1

Work Order ID: 83358

83358

Parent Item: D3689-1

D3689-1

Parent Item Name: SLEEVE

Start Date: 17/04/2012

Required Date: 01/05/2012

Start Qty: 16.00

Required Qty: 16.00

Comments: IPP Rev:A New Issue 08-02-11 JLM Verified By:EC
IPP Rev:B Material Change 09-01-07 JLM Verified By:EC
IPP Rev:C Add note on material cutting JLM Verified By:JM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

M174PH-H900R1.375

Purchased

No

100

f

49.0007

0.5

8.421053

M174PH-H900R1 375

**

SL 1216124

17-4 SS H900 ROUND BAR 1.375

Location

Loc Qty

Loc Code

MAT030

49.0007

111123

12.7507

121280

36.25

8.5

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	83358
Description: Sleeve		Part Number:	D3689-1
Inspection Dwg: D3689 Rev: B		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
1.90	+/-0.030	1.910	/		52-9	Verh
Ø0.768	+/-0.010	.765	/			
Ø0.063	+0.005/-0.001	.063	/		G.A.	
R0.06	+/-0.030	R.06	/		R.G.	
3/4-16UNF-2B	N/A		/			
0.035 x 45°	+/-0.010 x 0.5°	.040 x 45°	/			
1.5	+/-0.030	1.490	/			
1.35	+/-0.030	1.35	/			
Ø0.188	+0.005/-0.001	.1875	/			
60°	0.5°	60°	/			
Ø0.250	+/-0.010	Ø.250	/			Milling
Ø1.075	+0.000/-0.015	1.067	/			
1.13	+/-0.030	1.132	/			
4.00	+/-0.030	4.005	/			2nd q

Measured by:	<i>[Signature]</i>	Audited by:	<i>[Signature]</i>	Prototype Approval:	N/A
Date:	12/6/25	Date:	12/10/24	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	09.05.11	New Issue	KJ	<i>[Signature]</i>

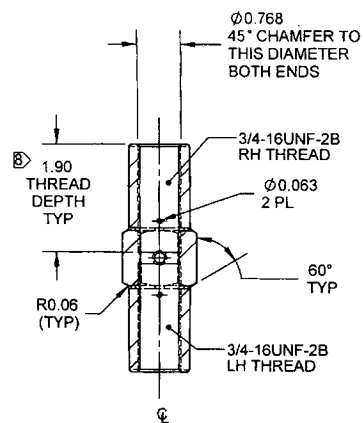
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

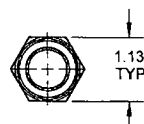
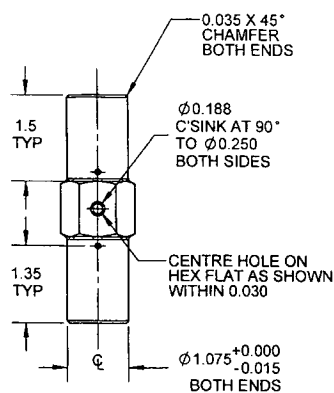
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

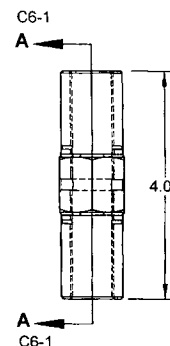
NOTE: Date & initial all entries



SECTION A-A
D3-1



D3689-1 SLEEVE



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 83358 MLJ
12/04/17

RELEASED
08/12/15 MLJ

- NOTES:**
- 1) MATERIAL: 17-4PH STAINLESS STEEL ROUND BAR PER AMS 5643 H-900 CONDITION
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 0.67 lb
 - 8) DIMENSION SHOWN IS MINIMUM DEPTH OF FULL THREAD
 - 9) LPI PER ASTM 1417 LEVEL 2

B	CHANGE TO 17-4PH H-900 (ZN AS-1), REFORMATTED TO CURRENT DWG STANDARDS	RF	08.11.24
A	NEW ISSUE	RF	08.05.22
REV.		BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<u>91</u>	DRAWING NO.	REV. B
MFG. APPR.	<u>21</u>	D3689	SHEET 1 OF 1
APPROVED	<u>11</u>	TITLE	SCALE
DE APPR.	<u>11</u>	SLEEVE	NTS
DATE	08.11.24	COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS UNCLASSIFIED AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NCR: (Yes) / No

WORK ORDER NON-CONFORMANCE / UPDATE

DQA: JA Date: 12/07/10QA Closed: cl Date: 12/7/10

Work Order: <u>83353 83358</u> Part No. <u>A3689-1</u> NCR No. <u>12-1576</u>				DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		AGAINST DEPARTMENT/PROCESS <div style="display: flex; justify-content: space-between;"> <div> Skid-tube <input type="checkbox"/> Machining <input checked="" type="checkbox"/> Thermoforming <input type="checkbox"/> Large Fab <input type="checkbox"/> </div> <div> Crosstube <input type="checkbox"/> Small Fab <input type="checkbox"/> Finishing <input type="checkbox"/> Composite <input type="checkbox"/> </div> <div> Prod. Eng. Coord. <input type="checkbox"/> Rec/Store/Packaging <input type="checkbox"/> Supplier <input type="checkbox"/> Other <input type="checkbox"/> </div> <div> Engineering Quality <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div> </div>					
--	--	--	--	---	--	--	--	--	--	--	--

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/> Equip/Tooling <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Material <input type="checkbox"/> Offset/Setup <input checked="" type="checkbox"/> Other <input type="checkbox"/> Process <input type="checkbox"/> Supplier <input type="checkbox"/> Training <input type="checkbox"/> Unauthorized <input type="checkbox"/>	12/7/3	100	1	1 part .006 too short is probably a chip between part and stepper. Re. operator error setup not correct.	<u>12/07/03</u> <u>PS1042</u>	SCRAP. CRITICAL PART CP 12/13/13 \$106.72	<u>12/7/3</u>	<u>5</u> <u>12/10/3</u>	<u>8</u> <u>12/10/3</u>

FAULT CATEGORY				
Landing Gear <input type="checkbox"/> Bending Passes Below Min <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimp at Bending <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Other <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Ripples on Inner Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	Hardware <input type="checkbox"/> Breaking <input type="checkbox"/> Missing <input type="checkbox"/> Size/Length <input type="checkbox"/> Spinning <input type="checkbox"/> Threading <input type="checkbox"/> Wrong Drill Holes <input type="checkbox"/> Misaligned <input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Undersized <input type="checkbox"/> Too Many	General <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Documentation/Data <input type="checkbox"/> Finish <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Inspection Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Jigs/Fixtures/Tooling <input type="checkbox"/> Kit Incorrect <input type="checkbox"/> Kit Missing	<input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Off-Set <input type="checkbox"/> Orientation Misread <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Lost <input type="checkbox"/> Part Moved <input type="checkbox"/> Raw Material	<input checked="" type="checkbox"/> Set-up <input type="checkbox"/> Supplier <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other



LIQUID PENETRANT TEST REPORT

P- 12193

CLIENT DAVE AERO SPACE DATE July 4-6-2012 PAGE 1 OF 1
ATTENTION LINDA/ANDY ACUREN JOB NO. 180-12-C0278 TIME AM ☒ PM ☐
ADDRESS 1270 ABELEEN ST. HAWKESBURY ON. POWO No. 17380 WORK LOCATION SAME
PROJECT FPI ON MACHINED PARTS ACCEPTANCE STD. ASTM 1417/051-038 REV./DATE 2008
ITEM(S) EXAMINED RAPPEL'S, STUD'S, SLEEVE'S

JOB DESCRIPTION PROCEDURE No. LT-002 Rev./DATE 2008 TECHNIQUE No. LT-002 Rev./DATE 2008
PART NO. SEE RESULTS MATERIAL STAINLESS STEEL THICKNESS VARIOUS
SCOPE A WET FLUORESCENT LIQUID PENETRANT EXAMINATION WAS COMPLETED ON SURFACE 100%

TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 16459 ☐ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 2 fc
PENETRANT 2LG7 MINIMUM DWELL TIME 45 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER LABINO
DEVELOPER SADS2 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N 1098866 CAL DUE DATE July 2012
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- ☒ METRIC ☐ IMPERIAL

W.O.#	STUD	
5 81735	" "	✓
30 81733	" "	✓
16 83359	" "	✓
W.O.#	RAPPEL	
5 RAPPEL 84719	" "	✓
W.O.#	SLEEVE	
15 83358	" "	✓

120709

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE <u>Andy Sheldon</u> PRINT	<u>ASheldon</u> SIGNATURE	DTR # <u>E-163666</u>
TECHNICIAN (SIGNATURE): <u>[Signature]</u>		REPORT REVIEWED BY:
NAME (PRINT): <u>[Signature]</u>	1 ST TECHNICIAN	NAME INITIALS
CGSB LEVEL <u>2</u> SNT LEVEL	CGSB LEVEL SNT LEVEL	
CGSB REG. NO. <u>6606</u>	CGSB REG. NO.	